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their positions by an alloy of zinc and copper, as easily wrought as common brass, and that they can be executed in this manner of any required size; that castings of the finest speculum metal can be executed of large dimensions, perfect, and not very liable to break; that machinery can be employed with the greatest advantage in grinding and polishing specula; that to obtain the finest polish, it is not necessary that the speculum should become warm, and that any temperature may be fixed upon, and preserved uniform during the whole process; and that large specula can be polished as accurately as small ones, and be supported so as to be secured from flexure.

2. On the theoretical explanation of an apparently new Polarity in Light. By G. B. Airy, Esq., M.A., F.R.S., Astronomer Royal.

The existence of a polarity in the rays of homogeneous light, having regard only to the sequence of colours in the spectrum, was inferred by Sir David Brewster from some experiments, of which he has given an account, contained in the Report of the seventh meeting of the British Association. The author states the results of his own observations of similar phenomena, and their theoretical explanation on the undulatory theory, together with the mathematical development of that explanation.

3. On the Ferrosesquicyanuret of Potassium. By Alfred Smee, Esq. Communicated by P. M. Roget, M.D., Sec. R.S.

The author examines, in this paper, the action of chlorine upon the ferrocyanate of potassa, and the conversion of the latter into ferrosesquicyanuret; and proposes methods for obtaining this latter salt uncontaminated with impurities, and free from the difficulties and inconvenience attendant on the present mode of preparation.

4. On the influence of Iodine in rendering several argentine compounds, spread on paper, sensitive to light; and on a new Method of producing, with greater distinctness, the Photogenic Image. By Mr. Robert Hunt. Communicated by Sir John Herschel, Bart., V.P.R.S.

This paper contains various details of the results of a great number of experiments made with a view of rendering paper capable of being employed instead of metallic plates, in Daguerre's photographic process. It is accompanied with 12 papers as specimens.

5. Hourly Observations of the Barometer and Thermometer at sea, on the 21st of March, 1840. By Major-General A. Lindsay, H.E.I.C.S. Communicated by Sir John F. W. Herschel, Bart., V.P.R.S.

These observations were made on board the ship Owen Glendower, on her voyage from Calcutta to London.

6. On the Constitution of Pigotite, and on the Mudesous and Mudesic Acids. By James F. W. Johnston, Esq., M.A., F.R.S.

In this paper the author describes a substance, found by himself